

What is claimed is:

1. An optical switch comprising:

plural optical fibers arranged in parallel with each other at non-equal intervals;

fixing mirror means located in front of said plural optical fibers and able to guide a beam emitted from a first optical fiber to a second optical fiber; and

movable mirror means able to be advanced and retreated in front of said plural optical fibers, and guiding the beam emitted from said first optical fiber to a third optical fiber, and able to form an optical path of substantially the same length as the optical path able to be constructed by said fixing mirror means from said first optical fiber to said second optical fiber when the movable mirror means is advanced in front of said optical fibers.

2. The optical switch according to claim 1, wherein the optical switch further comprises another fixing mirror means located in front of said plural optical fibers and able to guide the beam emitted from a fourth optical fiber to said third optical fiber, and

another movable mirror means able to be advanced and retreated in front of said plural optical fibers, and able to guide the beam emitted from said fourth optical fiber to said second optical fiber when this another movable mirror means is advanced in front of said optical fibers.

3. The optical switch according to claim 2, wherein one or both of the optical path constructed by said another fixing mirror means from said fourth optical fiber to said third optical fiber, and the optical path constructed by said another movable mirror means from said fourth optical fiber to said second optical fiber substantially have the same lengths as the optical path constructed by said fixing mirror means from said first optical fiber to said second optical fiber and the optical path constructed by said movable mirror means from said first optical fiber to said third optical fiber.

4. The optical switch according to claim 3, wherein the optical switch is used in the optical communication of an add-drop system, and said first optical fiber is set to IN and one of said second optical fiber and said third optical fiber is set to OUT, and the other is set to DROP, and said fourth optical fiber is set to ADD.

5. The optical switch according to claim 4, wherein only the optical path from said fourth optical fiber set to ADD to said second or third optical fiber set to DROP is different in length from the other optical paths.

6. The optical switch according to claim 4, wherein the optical path from said fourth optical fiber set to ADD to said second or third optical fiber set to DROP is interrupted on the way.

7. The optical switch according to claim 3, wherein said

fixing mirror means and said another fixing mirror means include at least four fixing mirrors in total, and said movable mirror means and said another movable mirror means include at least four movable mirrors in total simultaneously movable so as to be advanced or retreated in front of said plural optical fibers.

8. The optical switch according to claim 3, wherein said fixing mirror means and said another fixing mirror means include at least four fixing mirrors in total, and said movable mirror means and said another movable mirror means include two movable mirrors in total simultaneously movable so as to be advanced or retreated in front of said plural optical fibers and able to construct said optical path in cooperation with one of said fixing mirrors.

9. The optical switch according to claim 7, wherein each of said movable mirror and said fixing mirror can reflect only one beam.

10. The optical switch according to claim 8, wherein each of said movable mirror and said fixing mirror can reflect only one beam.

11. The optical switch according to claim 9, wherein said movable mirrors and said fixing mirrors are arranged by the same number as the number of portions ought to reflect the beam and required to construct said optical paths, and said movable mirror is formed at a size three times or less the beam diameter.

12. The optical switch according to claim 10, wherein said movable mirrors and said fixing mirrors are arranged by the same number as the number of portions ought to reflect the beam and required to construct said optical paths, and said movable mirror is formed at a size three times or less the beam diameter.

13. The optical switch according to claim 1, wherein all of said mirrors are arranged at an angle of 45 degrees with respect to the optical axis of said optical fiber.

14. The optical switch according to claim 1, wherein a lens functional part for converging said beam propagated within said optical fiber or changing this beam to parallel light is arranged between said optical fiber and said mirrors.

15. The optical switch according to claim 1, wherein the light amount for coupling the beam emitted from said optical fiber to another optical fiber forming the optical path together with said optical fiber can be adjusted by controlling the advancing amount and the retreating amount of said movable mirror with respect to the optical path.

16. An optical switch device in which plural optical switches according to claim 1 are arranged such that the optical axes are approximately parallel to each other on a face on which said optical fibers are arranged in parallel with each other.